A DYADIC PERSPECTIVE ON RETAILER-SUPPLIER RELATIONSHIPS THROUGH THE LENS OF SOCIAL CAPITAL

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ABSTRACT

Social capital theory has received increasing attention as a lens through which to examine supply chain relationships and the value creation process. Despite the growing application of social capital and its three dimensions, namely cognitive, structural and relational capital, to inter-organizational research, few studies in reality have taken a dyadic perspective. Using a paired sample of retailer-supplier relationships from Korean fast-moving consumer goods sector, we explore the configuration of social capital dimensions, and the impact on strategic and operational performance. The results suggest three clusters of relationships, which differ significantly on at least two of the dimensions of social capital. Furthermore, these clusters show considerable differences with respect to both operational and strategic performance, particularly at the lower levels of social capital. We also examine the impact of a disparity between the retailer and supplier with respect to different dimensions of social capital, henceforth called dissonance. Of the four clusters that emerge, interestingly, only dissonance on the cognitive dimension is related to lower operational and strategic relationship performance. In investigating the implications of dissonance for the retailer and supplier individually, our results suggest that performance differs based on the magnitude and direction of the dissonance. Our results show that consequences of having social capital or not are not necessarily the same for the retailer and the supplier.

Keywords: retailer-supplier partnerships; social capital; dyads; partnership performance; cluster analysis

1 Introduction

Increasingly adopted in supply chain management research (Carey et al, 2011; Krause et al, 2007; Villena et al, 2011), social capital theory highlights the importance of understanding the social and behavioral characteristics of a relationship between two actors and is argued to be the most significant way of theorizing the nature of connection and cooperation between organizations (Starkey, 2004; Adler, 2002).

Previous studies, such as Cousins et al. (2006), Krause et al. (2007), and Lawson et al. (2008), have investigated the antecedents and performance implications of social capital and, for the most part, have identified a positive link between social capital and performance. This has important practical implications as companies are becoming more and more embedded in a complex network of relationships. However, past studies have predominantly predicated their understanding of social capital – and performance – on the viewpoint of one of the parties in the relationship. The purpose of this study is to take a dyadic perspective of social capital and examine the link between social capital dimensions and performance. This offers a more complete view of strategic supplier relationships and provides insight into the impact on performance when there are different levels of social capital reported across the relationship. For practitioners, this research has important implications as it explores the differential effect of social capital dimensions on contrasting types of performance, allowing managers to better evaluate in what aspects of their strategic relationships they should be directing their attention, in order to leverage specific performance gains.

This study builds on retailer-supplier relationships in the fast-moving-consumer-goods (FMCG) industry, where the need for collaboration is clear (Alvarez et al., 2010; Fisher, 2013; Perez et al., 2010; Vieira et al., 2009). This sector has been at the forefront of various

collaborative supply-chain initiatives such as Effective Consumer Response (ECR) (Corsten and Kumar, 2005) and Vendor Managed Inventory (VMI) (Barratt and Oliveira, 2001). The success of initiatives such as these, hinges upon the social capital present in retailer-supplier relationships (McGrath and Spark, 2005). That said, the FMCG sector is also one in which opportunism can be particularly rife, impacting category performance and increasing the level of adverse behavior between retailers and suppliers, as highlighted by Morgan et al., (2007). Greater context specific attention must therefore be paid to the management of strategic retailer-supplier relationships in FMCG industries, if these organizations are to leverage the advantage that can be gained through social capital, as gained in the automotive, manufacturing or high-tech sectors (e.g. Burt, 1992; Carey et al, 2010).

The questions that have guided this research are: 1) what are the different configurations of social capital with respect to its dimensions between retailers and their strategic suppliers? 2.) Are there any patterns of dissonance across these dimensions? and 3) what are the strategic and operational performance implications of different social capital configurations or different patterns of dissonance? Strategic relationship performance refers to the strategic benefits that can be leveraged through relationships, such as product development, knowledge transfer and technology development. Whereas operational relationship performance captures improvements in efficiency measures such as lead-time, inventory levels, responsiveness, forecasting accuracy and cost reduction. This study uses matched-pair data from retailer-supplier dyads in the Korean FMCG retail industry to examine the research questions of interest and applies both cluster analysis and regression analysis techniques to examine the data.

Our results are two-fold: With respect to the overall structural, cognitive and relational dimensions of social capital in these retailer-supplier relationships, there are three clusters of relationships that differ significantly across these dimensions. In addition, the three clusters

exhibit significantly different levels of strategic and operational performance, especially at lower levels of social capital. When we considered the dissonance between the retailer and supplier across these dimensions, four clusters emerged. Lower operational and strategic relationship performance is associated only with the cluster that exhibits dissonance in cognitive capital. Surprisingly, significant dissonance in structural capital is not linked to lower performance. When we considered the performances of the retailers and supplier separately, the results suggested that the magnitude and direction of dissonance matters: in the case where the retailer rates the level of the social capital higher that the supplier (1) dissonance in relational and cognitive capital is positively related to the retailer's strategic performance, (2) dissonance in structural and cognitive capital is positively related to the retailer's operational performance and, (3) dissonance in cognitive capital is negatively related to both the supplier's strategic and operations performance.

Our contribution to the supply chain literature is to extend our understanding of the link between the three dimensions of social capital (relational, cognitive and structural capital), and performance by taking a dyadic perspective. The results bring into question the implicit assumption that has been made in previous studies that the relationship between social capital and all types of performance is linear. Finally, our work complements the relatively meager existing literature on other aspects of retailer-supplier relationships in the FMCG sector, despite the FMCG sector representing a significant portion of the economy (Delbufalo, 2012).

2 Literature Review

Building close relationships in supply chains provides companies with access to resources that may not otherwise be available to them (Dyer and Singh, 1998; Koka and Prescott, 2002), so such relationships constitute valuable capital (Koka and Prescott, 2002;

Lawson et al., 2008). Relational resources, embedded in a network of relationships, are called social capital (Bourdieu, 1986), and are regarded as valuable and non-imitable resources (Nahapiet and Ghoshal, 1998) which have been linked to performance differences between companies (Adler and Kwon, 2002).

With its origins in anthropology, sociology, social psychology, behavioral psychology, philosophy and economics (Griffith, 2006), social capital has a multi-disciplinary appeal, and as a result, there are various conceptualizations of social capital (Min et al., 2008; Tsai and Ghoshal, 1998). We align with other studies of social capital in a supply chain context (Artz, 1999; Cousins et al, 2006) in our adoption of Nahapiet and Ghoshal's (1998: 243) definition of social capital as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit".

2.1 Dimensions of Social Capital

Nahapiet and Ghoshal's (1998) definition reflects the multifaceted nature of social capital as a relational resource, comprised of different elements namely, relational capital, cognitive capital, and structural capital. Each of these dimensions will now be discussed in turn.

Relational capital generally refers to the goodwill that exists between actors, created through a history of interactions (Granovetter, 1992). This dimension of social capital focuses on relations that parties have which influence their behavior and social motivations such as sociability, approval and prestige (Nahapiet, 1998). It is a multi-dimensional concept that includes trust (Putnam, 1995), commitment (Coleman, 1994) and obligation (Coleman, 1994; Granovetter, 1992). As one of the key aspects of relational capital, trust, helps to alleviate fears of opportunism in the relationship and foster a sense of openness and reciprocity (Coleman, 1990; Kale et al, 2000; Tsai and Ghoshal, 1998; Zaheer et al., 1998).

In a similar way, the obligation and commitment embodied in relational capital serves to uphold agreed norms of interaction and a mutual confidence in the relationship. Commitment in this context, can be described as the emotional state of obligation to another party. A large number of studies have provided empirical evidence linking relational capital to improved supply chain performance (e.g. Carey et al., 2011; Krause et al., 2007; Lawson et al., 2008).

Cognitive capital refers to "resources providing shared representations, interpretations, and systems of meaning among parties" (Nahapiet and Ghoshal, 1998). Leana and Van Buren describe cognitive capital as associability, or "the willingness and ability to define collective goals that are then enacted collectively" (1999: 542). It reflects a mutuality of expectations between actors relating to how they work together towards the achievement of mutual goals. This concept suggests that the actors involved in the relationship understand that they must agree with each other on certain things in order to achieve their goals. Cognitive capital is present when both parties have similar perceptions of how they should conduct business, and share common objectives. Cognitive capital is manifest when both actors are committed to fulfilling certain actions or deliverables in the relationship with each other. Cognitive capital has been shown to help reduce misunderstandings (Tsai and Ghoshal, 1998), enable more effective coordination (De Carolis and Saparito, 2006) and reduce information asymmetry (Min et al., 2008).

Structural capital refers to the overall pattern of connections between actors and is comprised of the relationship ties that determine access to resources and how information flows between actors (Nahapiet and Ghoshal, 1998). There are a number of ways in which structural capital can be assessed: at the network level; the socialization level; and, the informational/knowledge sharing level. A dominant stream of literature examines structural capital at the network level, focusing on the importance of connections in a network through the strength of network ties, network density and centrality (McEvily *et al.*, 2003; Ahuja,

2000; Granovetter, 1973; Burt, 2000; Patnayakuni *et al*., 2008). More recently, the concept has been extended to incorporate social interaction ties, embodied through the formal and informal socialization that occurs between actors (Yli-Renko, 2001; Carey *et al.*, 2011). This perspective contends that socialization acts as an important structural tie, which facilitates cooperation in dyadic relationships. Another approach to assessing structural capital is at the informational level. In examining dyadic buyer-supplier relationships, Lawson *et al* (2008) operationalize structural capital using managerial communication and technical information exchanges as a proxy for the structural capital (embeddedness) of the relationship, while Koka and Prescott (2002) operationalized structural capital through information volume and diversity. This approach to measuring structural capital asserts that the sharing of specialized information and know-how, can improve communication between actors and foster better understanding of each other's key processes and operations.

2.2 Dissonance in Social Capital

While past research on inter-organizational, dyadic relationships has focused more extensively on the three dimensions of social capital and their implications of performance, the question of whether there is dissonance between the partners with respect to social capital has been left unanswered. Yet, the question of dissonance in other types of dyadic relationships has received significant attention (e.g. Bashshur et al., 2011; Bezrukova et al., 2012, Ross et al., 1997; Schminke et al., 2005; Zalesny and Kirsch, 1989).

A number of studies on inter-organizational dyadic relationships have investigated dissonance across various relationship attributes. For example, Gulati and Stych (2007) differentiate between dependence asymmetry and joint dependence to capture both the direction and extent of dependence. The underlying logic is that while dependence asymmetry creates a power imbalance that potentially puts the less powerful party at a disadvantage (Thompson, 1967), joint dependence enables a relational orientation, therefore

strengthening the returns (Zaheer and Venkatraman, 1995). Klein et al. (2007), on the other hand, create a composite score for relationship specific investments based on direction and extent and report better performance for relationships with levels of such investments as well as symmetry between the two parties in regards to them. Other studies have considered the dissonance in the relationship with respect to risk sharing (Ellram and Hendrick, 1995), unethical practices (Carter, 2000) and anticipated continuity of relationship (Krause et al. (2007).

Dissonance in dyadic relationships can often lead one party to extract gains from the relationship and behave opportunistically (Gundlach et al., 1995; Hawkins, 2008; Ojala and Hallikas, 2006). For example, a misalignment in the vision and values shared between parties (cognitive capital) can serve to undermine the health of the exchange and erode the trust that has been established. Such differences across a dyad can have a negative impact on performance, as they hinder effective communication by reducing information sharing and joint problem solving activities (Dougherty, 1992; Hatfield & Huseman, 1982; Smircich & Chesser, 1981). A Resource-Based-View (RBV) perspective of inter-firm relationships instructs that organizations that work together have access to each other's resources, pool each other's resources, and/or co-create new resources (Dyer & Singh, 1998; Eisenhardt & Schoonhoven, 1996; Lorenzoni & Lipparini, 1999; Rungtusanatham et al., 2003). Dissonance can limit the creation of "critical resources (that) may span firm boundaries and may be embedded in inter-firm routines and processes" (Dyer & Singh, 1998; Hatfield & Huseman, 1982), as it can restrict collaboration between partners. Thus, dissonance can negate the advantages asserted by the resource-based view.

In summary, as a relational asset, it should not be assumed that social capital is evenly distributed in relationships, as a state of 'perfect balance' is difficult to achieve. Balance can be taken to mean two different things: with respect to the three dimensions of social capital;

and, in terms of the unique perspectives of the two parties in the relationship. For that matter it is important to understand to what extent do both parties agree that they share social capital and also what, from each perspective, is the composition of this social capital in terms of the three dimensions (relational, cognitive and structural). The purpose of this study is to address this gap: while there is significant work on social capital and the interrelationships of the different dimensions, little has been said about the aforementioned balance. We explore the latter by considering the social capital configuration across the three dimensions and the dyadic dissonances between the perspectives of the retailers and their suppliers with respect to social capital.

3 Research Methods

3.1 Survey Administration and Data Collection

The data for this study was collected from the Korean FMCG sector. Few studies to date have used matched-pair data to examine the configuration of social capital dimensions, and the resultant impact on relationship performance. In collecting data from both sides of the dyad, we avoid a biased perspective of the relationship (Ambrose et al. 2010; John and Reve, 1982; Smith and Barclay, 1997), or misrepresentation of the actual state of the relationship (Johnston et al., 2004). The collection of dyadic data is particularly important given the nature of the constructs in this study: social capital accrues through repeated interactions between actors and cannot be created by one actor – it is a jointly developed relational resource (Adler and Kwon, 2002). In addition, this approach is consistent with previous research that has examined dissonance between different actors on specific aspects of their relationships (Barnes et al., 2007; Forker and Stannack, 2000; Spekman et al., 1997).

In order to increase the response rate and reduce survey error, this study followed procedures consistent with the Tailored Design Method, (Dillman, 2000). We first selected

fifty-four retailers from the directory published by the Korea Chainstore Association. We contacted each of them and asked them to identify their strategic suppliers, defined as suppliers from whom they source critical goods or to whom they can attribute the greatest volume of procurement spend (Kraljic, 1983), since these suppliers tend to be those the retailers enter collaborative relationships with (McCutcheon and Stuart, 2000). 14 retailers initially agreed to participate in the study. Two failed to provide adequate contact details of their suppliers, resulting in a sample of 92 suppliers from 12 retailers. We next mailed the supplier version of our questionnaire to those 92 suppliers: 83 of them returned their questionnaires but 3 were dropped due to excessive amounts of missing data. Third, we mailed the retailer version of the questionnaire to the corresponding buyer for each of the 80 supplier respondents, from whom we received 76 completed questionnaires, of which two were dropped due to missing data. The final number of complete responses was 74 pairs (148 individual questionnaires), corresponding to 74 relationships between 12 retailers and 70 suppliers. Survey based data collection in operations management is often associated with low response rates ranging from 5-10% (Malhotra & Grover, 1998). However, we made significant efforts to ensure response rates higher than 20% – the final rates were 22.2% (12 of 54) from retailers, and 90.2% (83 of 92) from suppliers.

3.2 Measurement Instrument

The unit of analysis in this study is the relationship between retailers and their strategic suppliers. Thus, the measures of all variables are operationalized in the context of this relationship. All items were measured using a seven-point Likert scale. The two different versions of the questionnaire (retailer and supplier) have 23 questions in common, in order to extract matched-pair data. In accordance with the two research questions we were interested in, namely the overall level of each dimension of social capital and the dissonance between

the retailers' and suppliers' perspectives on these dimensions, we transformed the data as follows: We followed the method used by Johnston et al. (2004) to consolidate responses from both parties, i.e., calculating the mean of both parties' responses to each of the 23 common questions n in order to investigate social capital configuration. Then, we calculated the differences in the responses to the 23 common questions, from both the retailer and the supplier, to understand the pattern of social capital dissonance and implications for performance.

We measured *structural capital* using a three-item scale, focusing on the information exchange capacity and types of information transferred between both actors. This approach aligns with that of Krause et al. (2007), who acknowledge the central role of general and relation-specific information sharing in developing structural ties between buyers and suppliers. In capturing the level of standardized and customized information exchanged, we build on this study, and other studies (Koka and Prescott, 2002; Lawson et al, 2008), that adopt an informational/knowledge sharing approach to the conceptualization of structural capital.

Relational capital was measured using a three item scale. Building on previous studies (Carey *et al,* 2011; Lawson *et al,* 2008), two items captured the level of trust between retailer and supplier and the level of commitment (i.e obligation) to the relationship from both sides. To adapt for the context under study (that of FMCG), a third item was added which assessed whether the relationship governance structure was based on trust rather than on power (Benton and Maloni, 2005),

Cognitive capital was measured using a three item scale adopted from literature, which captures the level of symmetry or agreement between partners as reflective of their shared vision and common understandings (Nahapiet and Ghoshal, 1998). Respondents reported on the level of agreement between actors around their willingness to change for the other actor,

the degree of agreement that both actors deliver as expected on commitments (deliverables or actions) in the relationship and the extent to which they identify the other actor as being important to them.

We used a 14 item scale to measure relationship performance. We adapted two scales from the literature to capture both operational and strategic performance and thus offer a more comprehensive evaluation of relationship performance (Villena et al, 2011). *Strategic relationship performance* measured the extent to which each company saw the relationship as enhancing its competitive position (Geringer and Herbert, 1991 and Glaister and Buckley, 1998). Following previous studies in the area (Villena et al, 2011; Krause et al, 2007), we were motivated to assess the impact that social capital has on the strategic benefits accruing from strategic supplier relationships (such as product development, knowledge transfer and technology development). *Operational relationship performance* (adopted and modified from Supply Chain Operations Reference Model) measured the extent to which the retailers-supplier relationship was perceived to have enhanced operational efficiency in measures such as lead-time, inventory levels, responsiveness, forecasting accuracy and cost reduction. Such measures using managers' perceptions of satisfaction with their relationships have been widely used elsewhere (Geringer and Herbert, 1991; Glaister and Buckley, 1998; Johnston et al., 2004; Liu et al., 2012).

3.3 Measurement validity and reliability

The convergent validity, discriminant validity and reliability of scales (constructs) were assessed using confirmatory factor analysis to ensure the measurement quality (see Table 1 and Table 2). Based on the thresholds suggested by Hu and Bentler (1999), the measurement model showed an acceptable fit (Chi-Square = 33.51, df = 24, p-value = 0.094, CMIN/df = 1.396, RMSEA = 0.074, CFI = 0.971). First, the convergent validity was assessed by examining the factor loadings. All the loadings were significant at $p<0.05$. Also, the average

variance extracted (AVE) values ranged from 0.543 to 0.677, all exceeding the cut-off value of 0.5, so the results provided strong support for the convergent validity (Fornell and Larcker 1981). Second, we assessed the reliability of our measures using composite reliability (CR) and Cronbach's Alpha. All the values exceeded 0.7, suggesting that there was no significant reliability issue in the measures. Third, the discriminant validity was assessed by comparing the square rooted AVE for each factor and the correlations between them. The results showed that all square rooted AVEs are greater than the correlations (as given in Table 1), confirming that there were no significant discriminant validity issues in our measures (Gefen and Straub 2005).

Constructs	Factor loadings[1]		S.E.	P	Cronbach's Alpha	AVE	C.R.
Relational Dimension	RE1	1.043	0.284	0.000	0.698	0.526	0.735
	RE2	0.626					
	RE3	0.321	0.142	0.006			
Structural Dimension	ST1	0.558			0.842	0.677	0.857
	ST2	0.946	0.450	0.000			
	ST3	0.908	0.382	0.000			
Cognitive Dimension	CG1	0.391	0.149	0.001	0.730	0.543	0.764
	CG2	0.846					
	CG3	0.872	0.124	0.000			

Table 1: Construct analysis.

	Relational	Structural	Cognitive	Strategic Performance	Operational Performance
Relational	1				
Structural	0.480**	1			
Cognitive	0.527**	0.584**	1		
Strategic Performance	0.291*	0.355**	0.489**	1	
Operational Performance	0.459**	0.480**	0.497**	0.577**	1

Table 2: Construct level correlation matrix (n=74), *p <0 .05; **P <0 .01.

3.4 Common Method Bias

Given that self-reported data was used, and the same respondents answered the questions on both social capital and performance, there is a possibility of common method bias

[1] As on Table 1, the factor loading for RE1 is larger than 1. It is not common but possible that a standardized regression weight can be larger than 1 and small sample size is one of the main causes, (Deegan, 1978; Jöreskog, 1999). Thus, this may be the result of he sample size of 74 pairs (148 respondents). The sample size also is indicative of the challenges of collecting matched pair data even it has an advantage of capturing the possible asymmetry between the members in a supply chain regarding their views and perception toward some common activities (Liu et al., 2009).

(Podsakoff et al. 2003; Podsakoff and Organ 1986). To assess this, we first conducted Harman's one-factor test to see if a single factor emerged that accounted for the majority of the covariance between the measures (Podsakoff et al. 2003). The un-rotated factor solution suggested that the largest factor accounted for 42.28 percent, which suggests that common method bias is unlikely to be a problem in this case (Malhotra et al., 2005). Then, the marker variable technique suggested by (Lindell and Whitney, 2001) was used to assess the existence of common method bias. A marker variable (joint partnership management), which was not used for the main model, was added and its correlations with the main variables was examined, since correlation between the marker variable and the other variables may suggest common method bias in the dataset (Malhotra et al., 2006). The correlations varied from 0.11 to -.102 and none of them were significant, lending agreement for the findings of the first test.

3.5 Analytical Methods

We carried out two types of analysis: Cluster analysis was used to explore different configurations of social capital and the possible dissonance between the retailers and suppliers in regards to social capital. This was then followed up with, regression analysis, which we used to probe the concept and implications of dissonance further. Social capital dissonance was measured both in direction and magnitude and its relationship with both retailer and supplier performance was investigated.

Cluster analysis is a statistical technique involving "the grouping of objects based on some measure of proximity defined among those objects" (Brusco et al., 2012). Cluster analysis has been used in previous supply chain management studies to categorize supply chains, whether with respect to absorptive capacity (Malhorta et al., 2005), purchasing functions (Cousins et al., 2006), logistics strategy (Autry et al., 2008), supply chain integration patterns (Flynn et al., 2010; Kannan and Tan, 2010) and supply chain information flow strategies (Vanpoucke et al., 2009).

In the analysis of the different social capital configurations, the three dimensions of social capital were used as partitioning variables. In the analysis of the dissonance, the absolute values of the difference between the responses from the retailer and the supplier for each dimension of social capital were used as partitioning variables.

A wide choice of partitioning methods is available, but non-hierarchical clustering methods are known to be less susceptible to outliers and the inclusion of irrelevant variables, as long as seed-points are provided before partitioning (Punj and Steward, 1983). In this study, Punj and Stewart's (1983) two-stage clustering method was adopted, where researchers can use non-hierarchical portioning methods in stage 2, with the initial seed-points obtained from a hierarchical cluster analysis at Stage 1. This method has been widely used in taxonomy and classification papers in both operations and supply chain management research (e.g., Bhalla et al., 2008; Frohlich, & Westbrook; 2002; Narasimhan et al., 2006).

For Stage 1 of Punj and Stewart's (1983) method, we conducted Ward's hierarchical cluster analysis to determine the number of clusters and initial seed points. To aid the decision on the final number of clusters, the approach suggested by Everitt et al. (2001) was used. Upon inspection of the dendrograms, agglomeration schedules and profiles of the alternative cluster solutions, it was determined that a three cluster solution was appropriate for the analysis of social capital configuration and a four cluster solution appropriate for the analysis of the dissonance in social capital in the dyad. For Stage 2 of the Punj and Stewart method, we used non-hierarchical cluster analyses (K-means) to partition the data according to the initial seed points and the number of clusters obtained from the previous stage.

Once the cluster analysis results suggested that dissonance existed for some relationships, at least for some of the dimensions of social capital, and that it was related to performance, we explored this further by using the approach of Gulati and Sytch (2007). This allowed us to capture both the magnitude and direction of the dissonance.

4 Results and Discussion

4.1 Social Capital Configuration

Social capital configuration captures the average level of social capital across the retailer-supplier dyads for the relational, structural and cognitive dimensions. The results, presented in Figure 1 and Table 3, suggest three clusters and, for the most part, a hierarchy between these clusters.

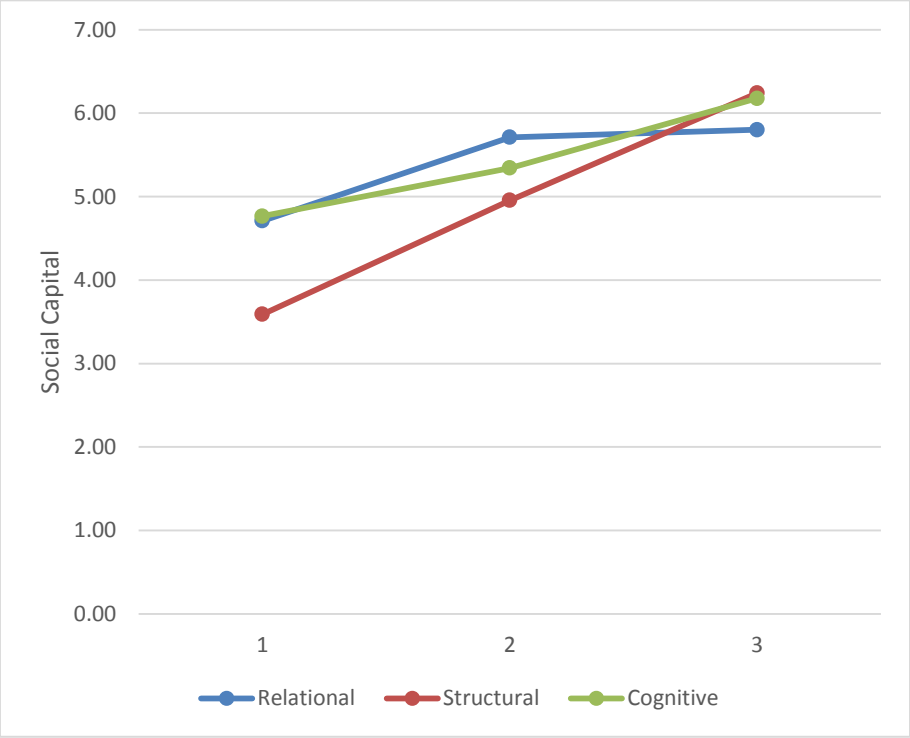

Figure 1: Configuration of Social Capital

Social Capital [1]	**ANOVA**	**Cluster** [2]		**N**	**Mean**
*Relational*** (Mean: 5.203) (SD: 0.768)	(F =34.652) (p =0.000)	I	II**	33	4.621
			III**		
		II	I**	23	5.522
			III		
		III	I**	18	5.861
			II		
*Structural*** (Mean: 4.514) (SD: 1.215)	(F =133.329) (p =0.000)	I	II**	33	3.465
			III**		
		II	I**	23	4.746
			III**		

		III	I**	18	6.138
			II**		
*Cognitive*** (Mean: 5.219) (SD: 0.787)	(F =42.512) (p =0.000)	I	II**	33	4.702
			III**		
		II	I**	23	5.225
			III**		
		III	I**	18	6.157
			II**		
			II		

I. 1) *p<0.05, ** p<0.01: significantly different from each other (ANOVA) and 2) *p<0.05, ** p<0.01: significantly different to the cluster in comparison (post hoc).
II. The aggregated scores were rescaled to 7 point Likert scales for ease of interpretation, (1: strongly disagree – 4: neutral – 7: strongly agree).

Table 3: ANOVA post hoc analysis on different social capital configurations

Cluster I contains the dyads with the lowest level of all dimensions of social capital across the three clusters. The most noteworthy characteristic of the dyads in cluster I is the unbalanced social capital pattern. More specifically, compared to cognitive and relational capital, lower levels of structural capital, that is general and customized information sharing, are observed in this cluster. As for cluster II, the retailer-supplier dyads in this cluster have a greater capacity to share information (structural capital), evidence significantly greater level of trust and positive relational behaviors (relational capital), and have a greater level of agreement and a shared vision in the relationship (cognitive capital), than the dyads in Cluster I. Cluster III comprises the retailer-supplier dyads that exhibit the highest levels of structural and cognitive capital compared to the other clusters. However, the level of relational capital accumulated through these relationships is not significantly greater from the dyads in Cluster II.

The different levels of social capital across the relational, structural and cognitive dimensions support the view that a ‘perfect balance’ between these different dimensions is difficult to achieve.

4.2 Social Capital Configuration and Relationship Performance

The analysis of the relationship between social capital and performance lead to the following points: While lower levels of social capital correspond to lower levels of operational and strategic performance and vice versa, the differences between the clusters in performance is only significant between clusters at the lower end. In other words, increasing levels of social capital are associated with increasing degrees of relationship performance, but only up to a certain level.

This could be due to the fact that the link between social capital and relationship performance is concave rather than linear: the efficacy of social capital for gains in both strategic and operational performance diminishes as its deployment increases. This finding shows similarity with the assertions of Lechner et al., (2010), Villena et al., (2011) and Zhou et al., (2014), who contend that the accumulation of social capital improves performance up to a point where the risks associated over-embeddedness offset the benefits.

Figure 2: Average values of different types of relationship performance in each cluster

Relationship performance[1)]	ANOVA	Cluster[2)]		N	Mean
*Strategic Performance*** (Mean: 4.860) (SD: 0.696)	(F = 5.363) (p = 0.007)	I	II**	33	4.601
			III**		
		II	I**	23	4.960
			III		
		III	I**	18	5.209
			II		
*Operational Performance*** (Mean: 5.251) (SD: 0.898)	(F = 10.689) (p = 0.000)	I	II**	33	4.809
			III**		
		II	I**	23	5.413
			III		
		III	I**	18	5.856
			II		

I. 1) *p<0.05, ** p<0.01: significantly different from each other (ANOVA) and 2) *p<0.05, ** p<0.01: significantly different to the cluster in comparison (post hoc). II. The aggregated scores were rescaled to 7 point Likert scales for ease of interpretation, (1: strongly disagree – 4: neutral – 7: strongly agree).

Table 4: One-way ANOVA and post hoc analysis on the performance of different configurations

Another possible explanation is rooted in the observation that the differences in social capital between clusters II and III are primarily with respect to structural and cognitive dimensions but not the relational dimension. In line with previous research on the mediating role of the relational dimension on the link between both structural and cognitive dimensions and performance (Carey et al., 2011; Lumineau & Henderson 2012; Tangpong et al., 2010; Zhao et al. 2008), our results would support the following: When buyers and suppliers begin to engage in more collaborative initiatives aimed at the transfer of tacit, relationship specific knowledge or information, this results in an increase in structural capital but also potentially exposes the partners to opportunism. Relational capital, and its informal governance properties associated with mutual trust, act as a mechanism to mitigate such risks, reducing the chance of exchange hazards (Zaheer et al, 1998). Therefore, it is important for a company to ensure such initiatives are safe-guarded with relational capital, otherwise actors cannot leverage performance gains from these strategic relationships.

4.3 Dissonance in Social Capital

A second cluster analysis was conducted to investigate the perspective of a 'perfect balance' between the relationship partners. In other words, we were interested in whether there was congruence between the parties with respect to the level of relational, structural and cognitive capital in the relationship. The results in Figure 3 and Table 5 suggest that there are four clusters exhibiting distinctive patterns around the absolute differences (that is the dissonance between the supplier and the retailer), across dimensions.

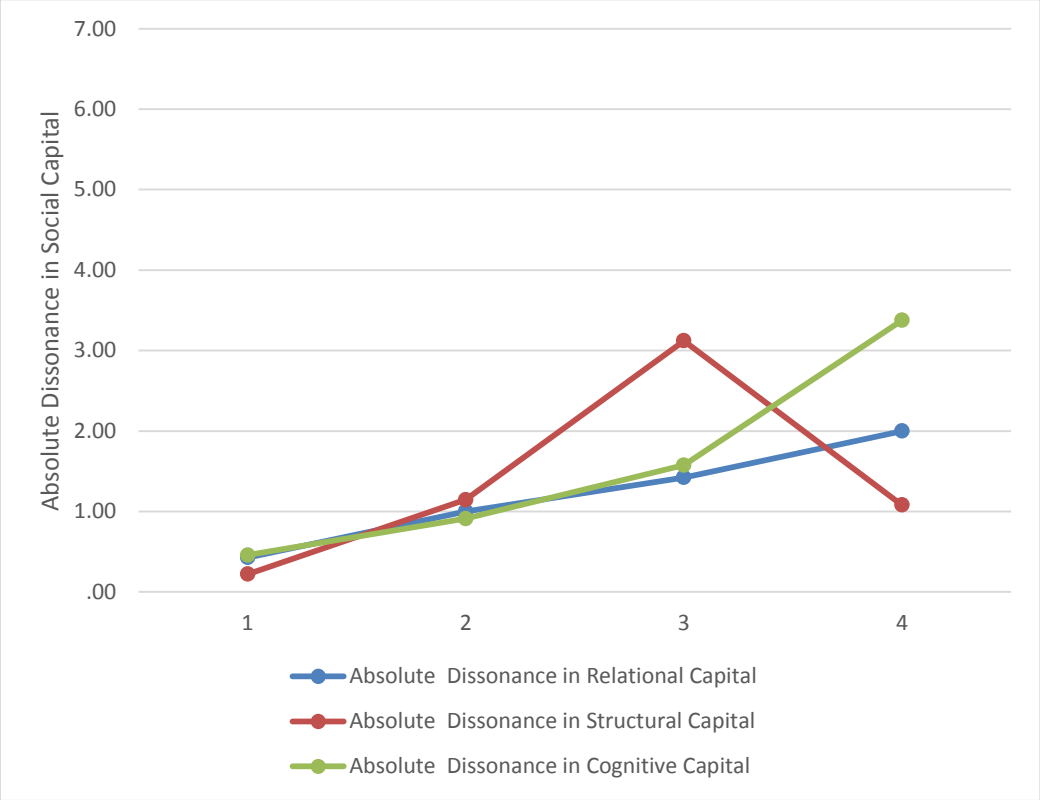

Figure 3: Average absolute dissonance in each dimension of social capital

Social Capital [1]	**ANOVA**	**Cluster** [2]		**N**	**Mean**
Absolute Dissonance in Relational Capital ** (Mean: 1.009) (SD: 0.776)	(F =14.469) (p = 0.000)	I	II**	21	0.428
			III**		
			IV**		
		II	I**	34	1.000
			III		
			IV**		
		III	I**	11	1.424
			II		
			IV		
		IV	I**	8	2.000

			II**		
			III		
Absolute Dissonance in Structural Capital ** (Mean: 1.171) (SD: 1.065)	(F =64.794) (p = 0.000)	I	II**	21	0.221
			III**		
			IV**		
		II	I**	34	1.147
			III**		
			IV		
		III	I**	11	3.121
			II**		
			IV**		
		IV	I**	8	1.081
			II		
			III**		
Absolute Dissonance in Cognitive Capital ** (Mean: 1.148) (SD: 1.022)	(F =54.891) (p = 0.000)	I	II**	21	0.459
			III**		
			IV**		
		II	I**	34	0.912
			III**		
			IV**		
		III	I**	11	1.575
			II**		
			IV**		
		IV	I**	8	3.375
			II**		
			III**		

I. 1) *p<0.05, ** p<0.01: significantly different from each other (ANOVA) and 2) *p<0.05, ** p<0.01: significantly different to the cluster in comparison (post hoc).
II. The aggregated scores were rescaled to 7 point Likert scales for ease of interpretation, (1: strongly disagree – 4: neutral – 7: strongly agree).

Table 5: One-way ANOVA and post hoc analysis on dissonance in relational, structural and cognitive social capital

Overall, the results suggest that considering social capital from a dyadic perspective is important and that retailer-supplier dissonance do not necessarily run across the dimensions of relational, structural and cognitive capital in the same way.

Of all the dyadic relationships considered, less than one third fell into the cluster with the lowest levels of dissonance. Even if we consider the second cluster, which one could argue still shows lower levels of dissonance – although significantly higher than cluster I - the two clusters together still account for three fourths of the sample. To date, most studies of social capital in inter-organizational relationships adopt a one-sided assessment of this valuable relational asset that is developed and shared between two parties. This study

contends that a dyadic approach is needed to offer a more accurate view of what is essentially a co-created construct.

In addition, when we look at the two clusters with high dissonance, the dissonance is not observed equally across all the dimensions of social capital. Specifically, the relationships in Cluster III exhibited a high divergence in the level of structural capital reported, whereas retailer-supplier pairs in Cluster IV showed high dissonance in the level of cognitive capital. The relationships in these two clusters also exhibited dissonance in the other dimensions of social capital but not to the same degree.

4.4 Dissonance in Social Capital and Relationship Performance

Table 6 and Figure 4 present the strategic and operational performance of the four clusters identified in section 4.3. The results show that performance is significantly lower for only Cluster IV, where the retailers and suppliers reported significantly different levels of social capital compared to the other clusters.

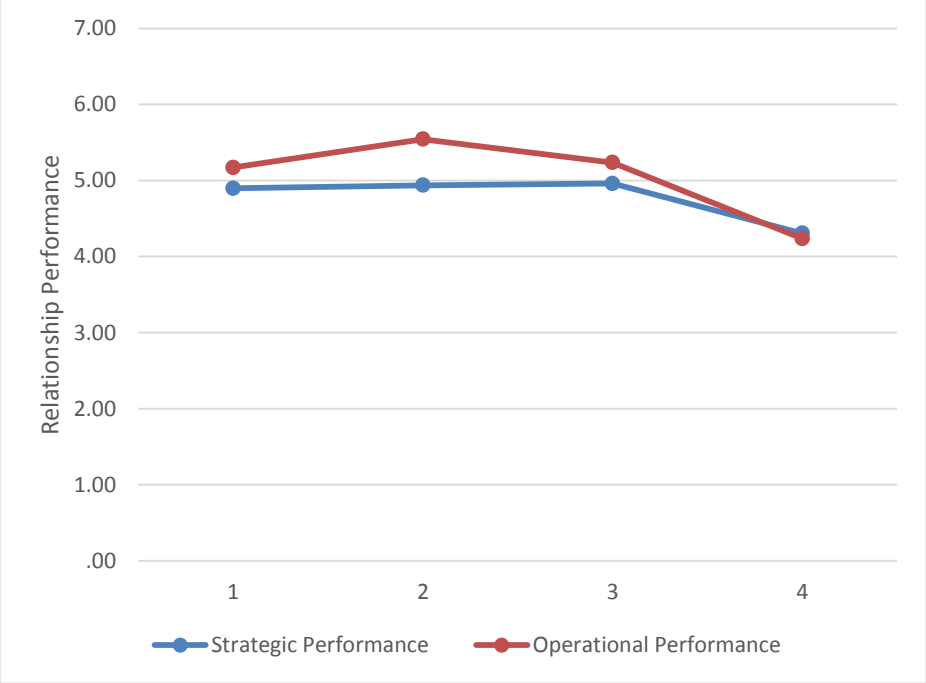

Figure 4: Average relationship performance in each cluster

Relationship performance [1]		Cluster [2]		N	Mean
Strategic Performance (Mean: 4.860) (SD: 0.696)	(F = 2.002) (p = 0.122)	I	II	21	4.897
			III		
			IV*		
		II	I	34	4.936
			III		
			IV*		
		III	I	11	4.960
			II		
			IV*		
		IV	I*	8	4.306
			II*		
			III*		
Operational Performance ** (Mean: 5.251) (SD: 0.898)	(F = 5.525) (p = 0.002)	I	II	21	5.171
			III		
			IV**		
		II	I	34	5.544
			III		
			IV**		
		III	I	11	5.236
			II		
			IV**		
		IV	I**	8	4.237
			II**		
			III*		

I. (1) *p<0.05, ** p<0.01: significantly different from each other (ANOVA) and (2) *p<0.05, ** p<0.01: significantly different to the cluster in comparison (post hoc).II. The aggregated scores were rescaled to 7 point Likert scales for ease of interpretation, (1: strongly disagree – 4: neutral – 7: strongly agree).

Table 6: One-way ANOVA and post hoc analysis on the performance of clusters with various dyadic dissonances

This result extends that of Villena et al (2011), who find a positive relationship between cognitive capital and relationship performance. Cognitive capital symbolizes a shared commitment to the relationship and provides a framework of agreed norms which can serve to support a relationship and enhance the willingness of parties to jointly improve performance (Inkpen and Tsang, 2005). Krause & Handfield (2007) suggested that if shared cognitions exist, both parties in the relationship will have a common understanding of what constitutes improvements performance, and how to accomplish such improvements. Shared meaning is described as a critical mechanism in ensuring coordination (Handfield et al, 1999), and has been positively linked to both subjective and objective measures of performance (Hult et al, 2004). It follows, then that when cognitions are not complementary between buyers and

suppliers, in the form of cognitive capital, this negatively affects the performance of the relationship from an operational perspective. In other words, when there is a dissonance in the relationship, pertaining to cognitive capital, this clearly upsets the shared sense of purpose and subsequent ability to deliver on commitments and performance gains.

What is more unexpected is that Cluster III does not exhibit significantly different performance outcomes compared to Clusters I and II despite a high level of dyadic dissonance in structural capital. In one of the very few studies on discrepancies, Klein et al. (2007) suggest that strategic information flows show some symmetry between parties in logistics relationships and that the symmetry matters for the relationship performance. Why our results do not confirm this for the retailer-supplier dyads requires further investigation.

Our results indicate that while the overall levels of social capital do have the expected link with relationship performance, the link between dissonance in social capital as reported by the two parties, and performance is not as straightforward. It is noteworthy and encouraging that low levels of dissonance did not appear to be negatively associated with relationship performance. Yet, dissonance in different dimensions of social capital seem to have different implications and more research is needed to understand this multifaceted concept.

4.5 Dissonance in Social Capital and Firm-level Performance

While in section 4.4 we investigate the link between dissonance in the relational, structural and cognitive dimensions and the overall strategic and operational performance of the relationship, the next question that warrants attention is if the implications on performance are the same for the retailer as it is for the supplier. Prior research on opportunism and relational rents has implied that dissonance in social capital would have a more detrimental effect on the more invested party (Gundlach et al., 1995; Hawkins, 2008; Ojala and Hallikas, 2006).

To this end, we first created six variables representing the direction and magnitude of dissonance in the three dimensions of social capital based on Gulati and Sytch (2007) (Table 7). For the case of the retailer indicating higher social capital, we first subtracted the supplier's response from the retailer's response for each dimension of social capital ($SC_R - SC_S$). If ($SC_R - SC_S$) was positive, we kept the value and zero if otherwise. In creating the variables for the suppliers, we used the same procedure but this time calculating ($SC_S - SC_R$) instead.

Next we regressed six dissonance variables, as well as several control variables, against the strategic and operational performance of each party separately. Regression diagnostics were carried out to ensure that the regression model assumptions were not violated.

	Mean	S.D.	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)
1) Dissonance in relational dimension (Retailer)	.725	.862														
2) Dissonance in structural dimension (Retailer)	.838	1.097	.298**													
3) Dissonance in cognitive dimension (Retailer)	.662	1.032	.509**	.341**												
4) Dissonance in relational dimension (Supplier)	.284	.526	-.460**	-.262*	-.278*											
5) Dissonance in structural dimension (Supplier)	.333	.705	-.138	-.366**	-.272*	.354**										
6) Dissonance in cognitive dimension (Supplier)	.486	.796	-.224	-.184	-.397**	.527**	.388**									
7) Strategic performance (Retailer)	4.774	.888	.408**	.251*	.485**	-.469**	-.208	-.340**								
8) Operational performance (Retailer)	5.432	1.327	.175	.329**	.294*	-.477**	-.352**	-.460**	.508**							
9) Strategic performance (Supplier)	4.948	1.090	-.239*	-.134	-.416**	-.056	.103	.050	-.019	.045						
10) Operational performance (Supplier)	5.070	1.079	-.266*	-.058	-.484**	.011	.069	.059	-.062	.105	.713**					
11) Revenue (Retailer)	7.849	2.154	-.265*	-.393**	-.381**	.290*	.221	.119	-.208	-.583**	.213	.191				
12) Revenue (Supplier)	4.021	2.330	-.072	-.296*	-.214	.349**	.447**	.404**	-.185	-.291*	-.061	.085	.334**			
13) Revenue Difference	7.630	2.265	-.228	-.356**	-.353**	.243*	.191	.098	-.159	-.580**	.221	.185	.982**	.221		
14) Retailer Type 1	.054	.228	-.016	.163	.060	-.092	-.114	.029	-.097	-.133	-.044	.074	-.085	-.041	-.073	
15) Retailer Type 2	.635	.485	-.276*	-.430**	-.406**	.341**	.200	.206	-.234*	-.535**	.208	.149	.836**	.279*	.803**	-.315**

***p <0 .05; **P <0 .01**

Table 7. Correlation matrix and descriptive statistics

	Buyer-supplier relationship performance			
	Retailer rated		Supplier rated	
	Performance (Strategic) β	Performance (Operational) β	Performance (Strategic) β	Performance (Operational) β
Dissonance (Retailer > Supplier) in				
Relational capital	.033	-.143	-.131	-.098
Structural capital	.053	.077	.025	.127
Cognitive capital	.375**	-.035	-.369*	-.533**
Dissonance (Supplier > Retailer) in				
Relational capital	-.350*	-.254*	-.246	-.112
Structural capital	.021	-.108	.113	.013
Cognitive capital	.022	-.234*	.004	-.135
Sales (Retailer)	-.518	.404		
Sales (Supplier)			-.144	.086
Sales difference	.629	-.698	.102	.072
Retailer Type 1	-.177	-.274**	-.022	.076
Retailer Type 2	-.067	-.263	.045	-.034
Overall R^2	.402	.603	.248	.290
Adjusted R^2	.307	.541	.129	.177
S.E.	.739	.900	1.017	.979
F	4.234**	9.589**	2.083*	2.569*

+p<0.1; *p <0 .05; **P <0 .01

Table 8. Results of regression analyses. "Dissonance (Retailer > Supplier)" in the table means the dissonance exists as the retailer rates a certain aspect of social capital higher than its supplier and vis-versa for "Dissonance (Supplier > Retailer)".

As can be seen from Table 8, none of the control variables had a significant relationship with performance, except the individual case of a negative relationship between retailer type one and the operational performance of the retailer. The results also suggest that the implications of social capital dissonance for the retailer and the supplier vary. In addition, the direction of dissonance has implications for the performance of the buyer and the supplier.

With respect to cognitive capital dissonance, it does have a significant performance impact on both retailer and supplier (Table 8). Cognitive capital is related to "shared representations, interpretations, and systems of meaning among parties" (Nahapiet and Ghoshal, 1998) and "the willingness and ability to define collective goals that are then enacted collectively" (Leana and Van Buren, 1999: 542). If a retailer rates it higher than its

supplier does, this might suggest that the relationship is led by the retailer, who could set the norms of engagement more favorably in its own direction, which would explain a positive link with retailer strategic performance. On the contrary, if the supplier rates cognitive capital higher, this links negatively with retailer operational performance. As for the supplier performance, we only found a significant – and negative - relationship between the retailer rating cognitive capital higher than the supplier and both dimensions of performance. In relation to the supplier, such dissonance would suggest that it does not have any influence on establishing of such norms and rules of the relationship.

As per relational capital, our findings are partially in line with the previous research arguing that trust asymmetry has negative performance implications (Korsgaard et al., 2015; Thomlinson et al., 2009; Call and Korsgaard, 2013). According to Tomlinson et al. (2009), dissonance in trust inhibits exchange parties from sharing mental models and also makes their actions more unpredictable, therefore having negative consequences on joint outcomes of an exchange relationship. Furthermore, dissonance in trust is more detrimental than low levels of overall trust. However, why this logic does not hold for the suppliers needs more investigation.

This study considers dissonance in social capital, yet the results are similar to the broader dissonance literature: apart from the magnitude, the direction of dissonance matters, and dissonance in dependence or trust leads to disproportionate advantages for the party in the more favorable situation (e.g. Aldrich, 1979; Emerson, 1962; Pfeffer and Salancik, 1978).

There is still the need for a more comprehensive understanding of the implications of the magnitude and direction of dissonance for each dimension of social capital. While the overall result that the party that has ‘the upper hand’ may be better off is intuitive and in alignment with past studies, it is much harder to explain the inconsistent impact of dissonance in the different dimensions of social capital on performance.

From the retailer perspective, these results should be evaluated carefully: Given that the retailer that rates the level of social capital higher than its supplier is also the one that sees higher performance, this situation could potentially lead to indifference. Yet, the fact that the partner is experiencing worse performance still needs to be considered; such performance could motivate this partner to exit the relationship which would leave the retailer in a vulnerable position, due to the loss of strategic supplier.

Our study is a first step in accounting for both parties' perspectives on social capital in retailer-supplier dyads. Our results suggest that this matters, and should be explored further. In any case, our results show that it does matter to take both parties into consideration when studying social capital.

5 Managerial Implications

The managerial implications from this study are as follows. While there is a clear link between social capital and performance, managers should differentiate between different dimensions of social capital and how they are interrelated in impacting relationship performance. In addition, managers should be sensitive to the perspectives of both organizations in a relationship, particularly with respect to cognitive capital as dissonance between the retailer and supplier on this dimension seems to have a detrimental effect on relationship performance. For practitioners, this infers that the establishment of agreed modes of operating, a commitment to the relationship and a common 'vision' for the relationship, helps not only to establish trust and longevity, but can also impact operational performance.. Given that these are strategic relationships, we contend that retailer's must consider their supplier's perspectives. When the dissonance is tipped in the direction of the retailer, this seems to be positively related to retailer performance but negatively linked to the performance of the supplier. Yet, even though the short-term benefits seems to be in favor of

the retailer, this discrepancy is likely to be detrimental in the long-term. Given the negative implications on its own performance, we would expect the supplier to strive towards finding a more mutually beneficial relationship, at which point the retailer would find itself in a more vulnerable position.

6 Conclusions and Suggestions for Further Research

The purpose of this study was to explore the different configurations of social capital within retailer-supplier relationships, and patterns of dissonance along the different dimensions of social capital. We adopt a holistic approach in our examination of all three dimensions of social capital (relational, cognitive and structural capital) and in doing so, offer a parsimonious assessment of how they influence performance outcomes in retailer-supplier relationships. Also, this is one of the few studies that examines the configuration of social capital in a dyadic context. The central tenet of social capital theory is that networks of relationships constitute a valuable resource for the exchange of social affairs. However, our research adds to the stream of literature by highlighting the need to consider the discrepancies within the dyad across the different dimensions of social capital, on performance.

In terms of configuration, while our results support earlier studies which report that increasing levels of social capital are associated with improved performance, we also extend previous research through our adoption of a more granular view which suggests differences across the dimensions of social capital, and across different types of performance. In addition, recent studies such as Villena et al (2011), have cautioned against the assumption of a simple, linear relationship between social capital and performance. Our results support this concern.

Unlike previous studies, the dyadic nature of our data also allowed us to look into the implications of dissonance between the retailer and supplier with respect to the three dimensions of social capital. We again employed cluster analysis to identify where the

differences were, and four clusters emerged. We then considered the relationship between the different clusters and relationship performance. The results of the second cluster analysis suggest that for most of the relationships, dissonance is low and does not seem to be related to declining relationship performance. Our follow up analyses, which investigated the implications of magnitude and direction of the dissonance for the retailer and the supplier performance, provided a more granulated picture of this. The results suggest that it is not only the magnitude but also the direction of dissonance that matters in understanding the implications on the performance of the buyer and the supplier.

Our study opens up several avenues for future research. Whilst, this study has enabled us to examine the current state of retailer-supplier relationships and the level of social capital embedded, we cannot explore the evolution, or indeed demise, of social capital. Prior research has suggested that decisions pertaining to the management or development of social capital are not straightforward since: (1) investing in social capital can be costly and may not be convertible, (2) similar benefits may be obtained more cost effectively by investing other types of capital, and (3) the over-embeddedness of social capital might have negative effects (Adler and Kwon, 2002). Also, the performance implications of the magnitude and direction of dissonance for each dimension of social capital require future academic attention.

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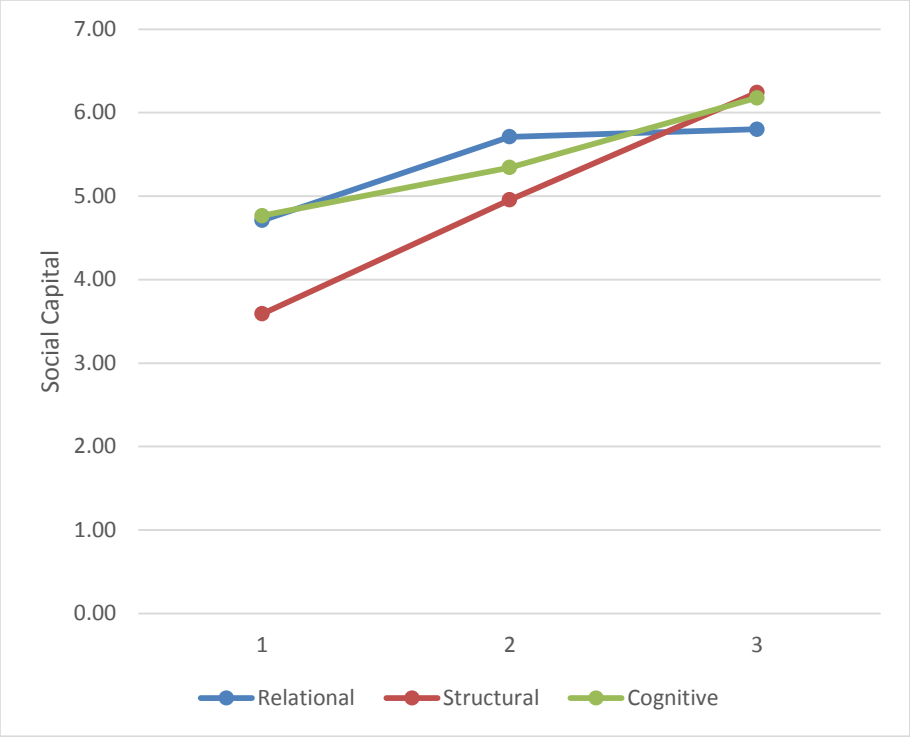

Figure 1: Configuration of Social Capital

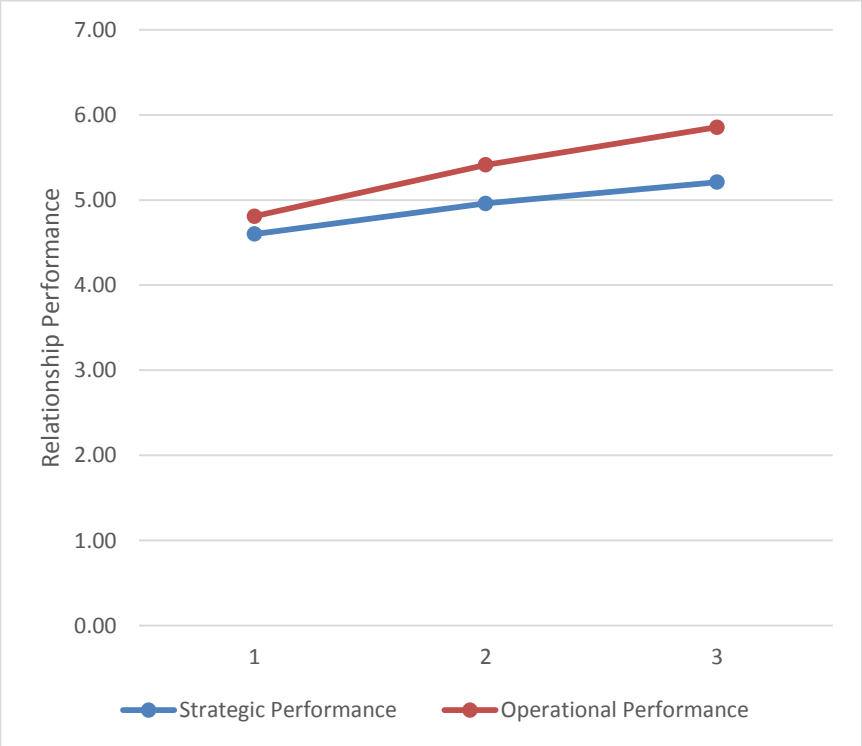

Figure 2: Average values of different types of relationship performance in each cluster

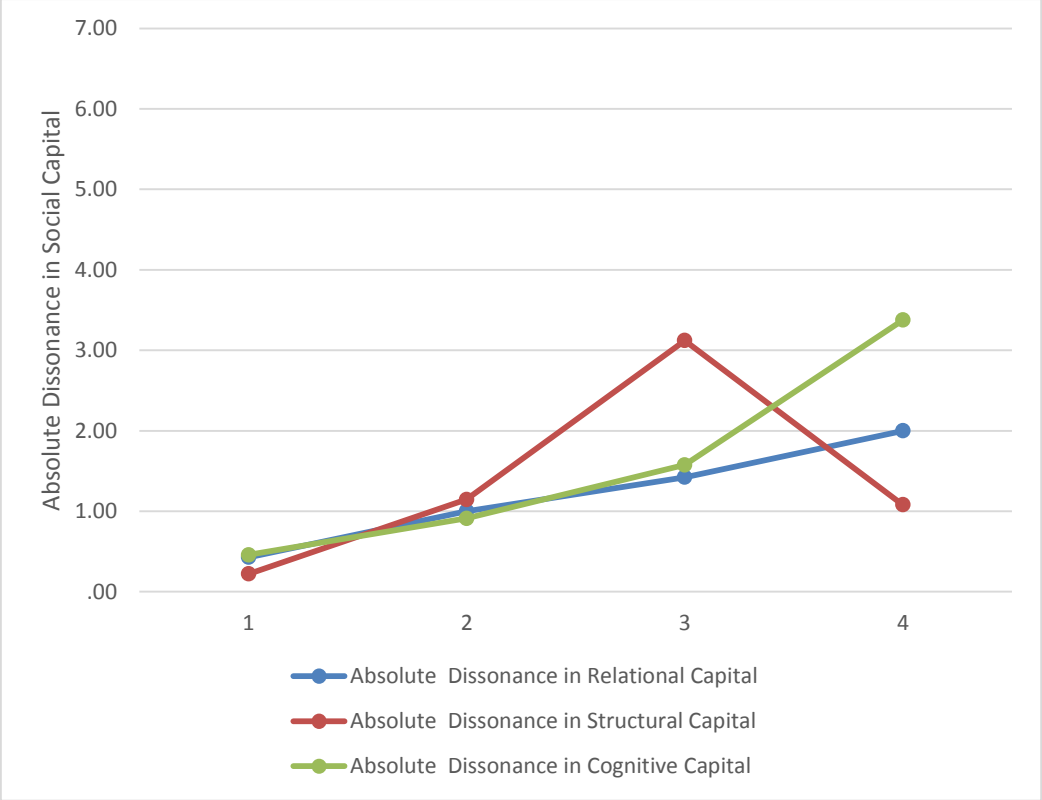

Figure 3: Average absolute dissonance in each dimension of social capital

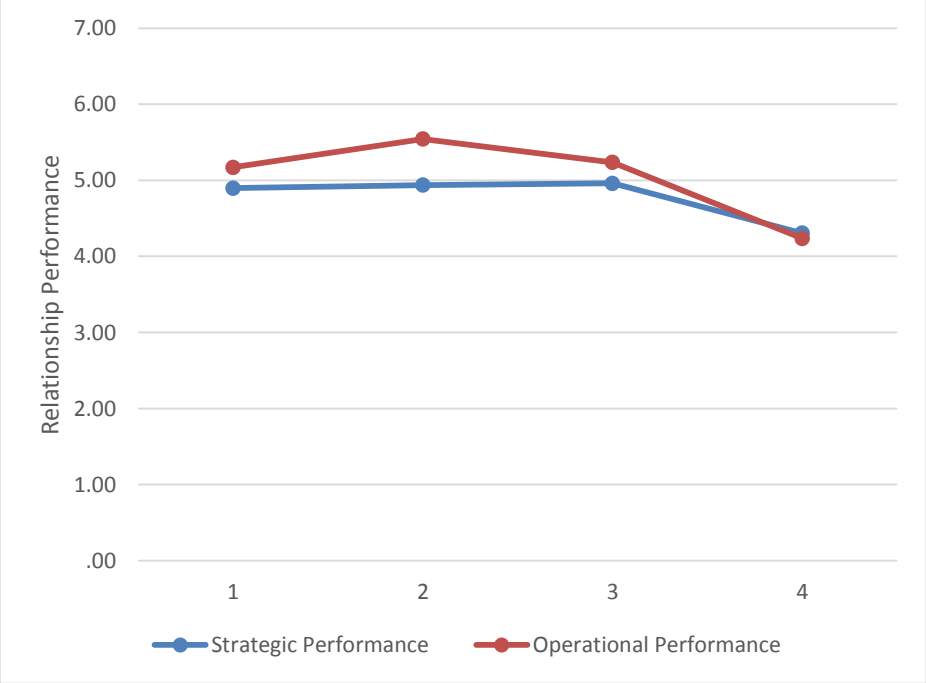

Figure 4: Average relationship performance in each cluster

Constructs	Factor loadings[2]		S.E.	P	Cronbach's Alpha	AVE	C.R.
Relational Dimension	RE1	1.043	0.284	0.000	0.698	0.526	0.735
	RE2	0.626					
	RE3	0.321	0.142	0.006			
Structural Dimension	ST1	0.558			0.842	0.677	0.857
	ST2	0.946	0.450	0.000			
	ST3	0.908	0.382	0.000			
Cognitive Dimension	CG1	0.391	0.149	0.001	0.730	0.543	0.764
	CG2	0.846					
	CG3	0.872	0.124	0.000			

Table 1: Construct analysis.

	Relational	Structural	Cognitive	Strategic Performance	Operational Performance
Relational	1				
Structural	0.480**	1			
Cognitive	0.527**	0.584**	1		
Strategic Performance	0.291*	0.355**	0.489**	1	
Operational Performance	0.459**	0.480**	0.497**	0.577**	1

Table 2: Construct level correlation matrix (n=74), *p <0 .05; **P <0 .01.

Social Capital [(1)]	**ANOVA**	**Cluster [(2)]**		**N**	**Mean**
*Relational*** (Mean: 5.203) (SD: 0.768)	(F =34.652) (p =0.000)	I	II**	33	4.621
			III**		
		II	I**	23	5.522
			III		
		III	I**	18	5.861
			II		
*Structural*** (Mean: 4.514) (SD: 1.215)	(F =133.329) (p =0.000)	I	II**	33	3.465
			III**		
		II	I**	23	4.746
			III**		
		III	I**	18	6.138
			II**		
*Cognitive*** (Mean: 5.219) (SD: 0.787)	(F =42.512) (p =0.000)	I	II**	33	4.702
			III**		
		II	I**	23	5.225
			III**		
		III	I**	18	6.157
			II**		
			II		

I. 1) *p<0.05, ** p<0.01: significantly different from each other (ANOVA) and 2) *p<0.05, ** p<0.01: significantly different to the cluster in

[2] As on Table 1, the factor loading for RE1 is larger than 1. It is not common but possible that a standardized regression weight can be larger than 1 and small sample size is one of the main causes, (Deegan, 1978; Jöreskog, 1999). Thus, this may be the result of he sample size of 74 pairs (148 respondents). The sample size also is indicative of the challenges of collecting matched pair data even it has an advantage of capturing the possible asymmetry between the members in a supply chain regarding their views and perception toward some common activities (Liu et al., 2009).

comparison (post hoc).
II. The aggregated scores were rescaled to 7 point Likert scales for ease of interpretation, (1: strongly disagree – 4: neutral – 7: strongly agree).

Table 3: ANOVA post hoc analysis on different social capital configurations

Relationship performance[1)]	ANOVA	Cluster[2)]		N	Mean
*Strategic Performance*** (Mean: 4.860) (SD: 0.696)	(F = 5.363) (p = 0.007)	I	II**	33	4.601
			III**		
		II	I**	23	4.960
			III		
		III	I**	18	5.209
			II		
Operational Performance ** (Mean: 5.251) (SD: 0.898)	(F = 10.689) (p = 0.000)	I	II**	33	4.809
			III**		
		II	I**	23	5.413
			III		
		III	I**	18	5.856
			II		

I. 1) *p<0.05, ** p<0.01: significantly different from each other (ANOVA) and 2) *p<0.05, ** p<0.01: significantly different to the cluster in comparison (post hoc). II. The aggregated scores were rescaled to 7 point Likert scales for ease of interpretation, (1: strongly disagree – 4: neutral – 7: strongly agree).

Table 4: One-way ANOVA and post hoc analysis on the performance of different configurations

Social Capital [(1)]	ANOVA	Cluster [(2)]		N	Mean
*Absolute Dissonance in Relational Capital ** (Mean: 1.009) (SD: 0.776)	(F =14.469) (p = 0.000)	I	II**	21	0.428
			III**		
			IV**		
		II	I**	34	1.000
			III		
			IV**		
		III	I**	11	1.424
			II		
			IV		
		IV	I**	8	2.000
			II**		
			III		
*Absolute Dissonance in Structural Capital ** (Mean: 1.171) (SD: 1.065)	(F =64.794) (p = 0.000)	I	II**	21	0.221
			III**		
			IV**		
		II	I**	34	1.147
			III**		
			IV		
		III	I**	11	3.121
			II**		
			IV**		
		IV	I**	8	1.081
			II		
			III**		
*Absolute Dissonance in Cognitive Capital ** (Mean: 1.148) (SD: 1.022)	(F =54.891) (p = 0.000)	I	II**	21	0.459
			III**		
			IV**		
		II	I**	34	0.912
			III**		

			IV**		
		III	I**	11	1.575
			II**		
			IV**		
		IV	I**	8	3.375
			II**		
			III**		

I. 1) *p<0.05, ** p<0.01: significantly different from each other (ANOVA) and 2) *p<0.05, ** p<0.01: significantly different to the cluster in comparison (post hoc).
II. The aggregated scores were rescaled to 7 point Likert scales for ease of interpretation, (1: strongly disagree – 4: neutral – 7: strongly agree).

Table 5: One-way ANOVA and post hoc analysis on dissonance in relational, structural and cognitive social capital

Relationship performance [1]		**Cluster** [2]		**N**	**Mean**
Strategic Performance (Mean: 4.860) (SD: 0.696)	(F = 2.002) (p = 0.122)	I	II	21	4.897
			III		
			IV*		
		II	I	34	4.936
			III		
			IV*		
		III	I	11	4.960
			II		
			IV*		
		IV	I*	8	4.306
			II*		
			III*		
Operational Performance ** (Mean: 5.251) (SD: 0.898)	(F = 5.525) (p = 0.002)	I	II	21	5.171
			III		
			IV**		
		II	I	34	5.544
			III		
			IV**		
		III	I	11	5.236
			II		
			IV**		
		IV	I**	8	4.237
			II**		
			III*		

I. (1) *p<0.05, ** p<0.01: significantly different from each other (ANOVA) and (2) *p<0.05, ** p<0.01: significantly different to the cluster in comparison (post hoc).II. The aggregated scores were rescaled to 7 point Likert scales for ease of interpretation, (1: strongly disagree – 4: neutral – 7: strongly agree).

Table 6: One-way ANOVA and post hoc analysis on the performance of clusters with various dyadic dissonances

	Mean	S.D.	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)
1) Dissonance in relational dimension (Retailer)	.725	.862														
2) Dissonance in structural dimension (Retailer)	.838	1.097	.298**													
3) Dissonance in cognitive dimension (Retailer)	.662	1.032	.509**	.341**												
4) Dissonance in relational dimension (Supplier)	.284	.526	-.460**	-.262*	-.278*											
5) Dissonance in structural dimension (Supplier)	.333	.705	-.138	-.366**	-.272*	.354**										
6) Dissonance in cognitive dimension (Supplier)	.486	.796	-.224	-.184	-.397**	.527**	.388**									
7) Strategic performance (Retailer)	4.774	.888	.408**	.251*	.485**	-.469**	-.208	-.340**								
8) Operational performance (Retailer)	5.432	1.327	.175	.329**	.294*	-.477**	-.352**	-.460**	.508**							
9) Strategic performance (Supplier)	4.948	1.090	-.239*	-.134	-.416**	-.056	.103	.050	-.019	.045						
10) Operational performance (Supplier)	5.070	1.079	-.266*	-.058	-.484**	.011	.069	.059	-.062	.105	.713**					
11) Revenue (Retailer)	7.849	2.154	-.265*	-.393**	-.381**	.290*	.221	.119	-.208	-.583**	.213	.191				
12) Revenue (Supplier)	4.021	2.330	-.072	-.296*	-.214	.349**	.447**	.404**	-.185	-.291*	-.061	.085	.334**			
13) Revenue Difference	7.630	2.265	-.228	-.356**	-.353**	.243*	.191	.098	-.159	-.580**	.221	.185	.982**	.221		
14) Retailer Type 1	.054	.228	-.016	.163	.060	-.092	-.114	.029	-.097	-.133	-.044	.074	-.085	-.041	-.073	
15) Retailer Type 2	.635	.485	-.276*	-.430**	-.406**	.341**	.200	.206	-.234*	-.535**	.208	.149	.836**	.279*	.803**	-.315**

***p <0 .05; **P <0 .01**

Table 7. Correlation matrix and descriptive statistics

	Buyer-supplier relationship performance			
	Retailer rated		Supplier rated	
	Performance (Strategic) β	Performance (Operational) β	Performance (Strategic) β	Performance (Operational) β
Dissonance (Retailer > Supplier) in				
Relational capital	.033	-.143	-.131	-.098
Structural capital	.053	.077	.025	.127
Cognitive capital	.375**	-.035	-.369*	-.533**
Dissonance (Supplier > Retailer) in				
Relational capital	-.350*	-.254*	-.246	-.112
Structural capital	.021	-.108	.113	.013
Cognitive capital	.022	-.234*	.004	-.135
Sales (Retailer)	-.518	.404		
Sales (Supplier)			-.144	.086
Sales difference	.629	-.698	.102	.072
Retailer Type 1	-.177	-.274**	-.022	.076
Retailer Type 2	-.067	-.263	.045	-.034
Overall R^2	.402	.603	.248	.290
Adjusted R^2	.307	.541	.129	.177
S.E.	.739	.900	1.017	.979
F	4.234**	9.589**	2.083*	2.569*

+p<0.1; *p <0 .05; **P <0 .01

Table 8. Results of regression analyses. "Dissonance (Retailer > Supplier)" in the table means the dissonance exists as the retailer rates a certain aspect of social capital higher than its supplier and vis-versa for "Dissonance (Supplier > Retailer)".

APPENDIX

Measures for structural, relational and cognitive social capital.

Clustering Variables	Questionnaire Items
Structural Capital	1: My company has system and method for external information sharing with this partner.
	2: My company shares standardized information with this partner (the name of the company)
	3: My company shares customized information with this partner (the name of the company)
Relational Capital	1: The business relationship with this partner (the name of the company) is based on trust
	2: My company is committed to maintaining a close relationship with this partner (the name of the company)
	3-1 (for the FMCG retailer): My company intends to avoid exercising power in the relationship with this partner (the name of the company). 3-2 (for the supplier): My company feels that my partner (the name of the company) leads the relationship by exercising power (reverse coded).
Cognitive	1: This partner (the name of the company) is similar to us in that they are

Capital	willing to change for the benefit of the relationship
	2: This partner (the name of the company) has similar values to us in relation to keeping commitments made in the relationship
	3: This partner (the name of the company) has a similar vision as us, about the importance of this relationship

Measures for strategic and operational relationship performance.

Relationship Performance	Questionnaire Items
Strategic: Enhancement of Company's Competitive Positions	YS1: Profit level
	YS2: Cost control
	YS3: Technology development
	YS4: New product development
	YS5: Knowledge transfer
	YS6: Manufacturing and quality control
	YS7: Marketing activities
	YS8: Sales level
	YS9: Customer service
Operational: Contribution to Operational Efficiency	YO1: Forecasting accuracy
	YO2: Inventory level
	YO3: Lead time